

CLAIMS

[Claim 1]

A transmitting device that processes radio transmitted signals, comprising:

a frequency conversion means that converts an original time sequence signal of a known multi-valued pattern into a frequency signal to attain a spectrum characteristic,

a spectrum characteristic processing means that changes an amplitude of a spectrum signal while retaining phase information of the spectrum, and

a means that reconverts a spectrum having the spectrum characteristic processing applied into a time sequence signal.

[Claim 2]

A transmitting device according to Claim 1, further comprising a means that transmits a signal reconverted into the time sequence signal together with a data body as a pre-amble signal for attaining synchronization on a receiving side.

[Claim 3]

A transmitting device according to Claim 2, further comprising a modulation processing means that modulates a transmitted data body to attain a modulated signal for transmission, wherein the modulated signal is transmitted together with the pre-amble signal.

[Claim 4]

A transmitting device according to Claim 3, wherein the modulation processing means performs an OFDM modulation that applies amplitude and phase modulation to carriers each,

applies inverse FFT to the plural carriers, and thereby converts the carriers into signals on the time base, while retaining the orthogonality of the carriers each on the frequency axis.

[Claim 5]

A transmitting device according to Claim 3, wherein the spectrum characteristic processing means forcibly changes a spectrum amplitude of an original time sequence signal, in a manner that the spectrum amplitude of the original time sequence signal becomes equal to that of a modulated signal for transmission, while retaining phase information of the spectrum of the original time sequence signal.

[Claim 6]

A transmitting device according to Claim 4, wherein the spectrum characteristic processing means sets a spectrum amplitude of an original time sequence signal to a specific value at a center frequency band and end frequency bands of a frequency domain in use, and smoothes the spectrum amplitude at the other frequency bands, in a manner that the spectrum amplitude of the original time sequence signal becomes equal to that of a general OFDM signal while retaining phase information of the original time sequence signal.

[Claim 7]

A transmitting device according to Claim 6, wherein the spectrum characteristic processing means nullifies the spectrum amplitude on the center frequency band and end frequency bands.

[Claim 8]

A transmitting device according to Claim 1, further comprising a pre-amble pattern storage means that stores a signal reconverted into the time sequence signal as a pre-amble signal for attaining synchronization on a receiving side,

wherein the pre-amble signal read from the pre-amble pattern storage means is transmitted together with a transmitted data body on transmission thereof.

[Claim 9]

A transmitting method that processes radio transmitted signals, comprising:

a frequency conversion step that converts an original time sequence signal of a known multi-valued pattern into a frequency signal to attain a spectrum characteristic,

a spectrum characteristic processing step that changes an amplitude of a spectrum signal while retaining phase information of the spectrum, and

a step that reconverts a spectrum having the spectrum characteristic processing applied into a time sequence signal.

[Claim 10]

A transmitting method according to Claim 9, further comprising a step that transmits a signal reconverted into the time sequence signal together with a data body as a pre-amble signal for attaining synchronization on a receiving side.

[Claim 11]

A transmitting method according to Claim 10, further

comprising a modulation processing step that modulates a transmitted data body to attain a modulated signal for transmission, wherein the modulated signal is transmitted together with the pre-amble signal.

[Claim 12]

A transmitting method according to Claim 11, wherein the modulation processing step performs an OFDM modulation that applies amplitude and phase modulation to carriers each, applies inverse FFT to the plural carriers, and thereby converts the carriers into signals on the time base, while retaining the orthogonality of the carriers each on the frequency axis.

[Claim 13]

A transmitting method according to Claim 11, wherein the spectrum characteristic processing step forcibly changes a spectrum amplitude of an original time sequence signal, in a manner that the spectrum amplitude of the original time sequence signal becomes equal to that of a modulated signal for transmission, while retaining phase information of the spectrum of the original time sequence signal.

[Claim 14]

A transmitting method according to Claim 12, wherein the spectrum characteristic processing step sets a spectrum amplitude of an original time sequence signal to a specific value at a center frequency band and end frequency bands of a frequency domain in use, and smoothes the spectrum amplitude at the other frequency bands, in a manner that the spectrum

amplitude of the original time sequence signal becomes equal to that of a general OFDM signal while retaining phase information of the original time sequence signal.

[Claim 15]

A transmitting method according to Claim 14, wherein the spectrum characteristic processing step nullifies the spectrum amplitude on the center frequency band and end frequency bands.

[Claim 16]

A transmitting method according to Claim 9, further comprising a pre-amble pattern storage step that stores a signal reconverted into the time sequence signal as a pre-amble signal for attaining synchronization on a receiving side,

wherein the pre-amble pattern stored in advance is read out and transmitted together with a transmitted data body on transmission thereof.

[Claim 17]

A storage medium storing a multi-valued pattern, wherein an original time sequence signal of a known multi-valued pattern is converted into a frequency signal, an amplitude of a spectrum signal is changed while phase information of the spectrum is retained, and thereafter the spectrum signal is reconverted into a signal on the time base.

[Claim 18]

A transmitting device comprising:

a storage medium storing a multi-valued pattern generated by converting an original time sequence signal of a known multi-valued pattern into a frequency signal, changing

an amplitude of a spectrum signal while retaining phase information of the spectrum, and thereafter reconvert the spectrum signal into a signal on the time base;

a modulation means that performs modulation processing to a transmitted data body; and

a transmission means that transmits the multi-valued pattern read from the storage medium as a pre-amble signal together with a transmitted signal modulated by the modulation means.